REMARKS/ARGUMENTS

The Invention

The invention is directed to a recombinant vector containing an infectious herpes virus genomic sequence larger than 100 kb and a cloning vehicle sequence that is derived from a bacterial artificial chromosome (BAC) and that can be replicated in a host cell, a cell comprising same, a method of producing such a recombinant vector, and a method of mutagenizing an infectious viral genomic sequence in the aforementioned recombinant vector, as well as a vector obtained in accordance with such a method.

The Pending Claims

Claims 36, 37, and 40-72 currently are pending. Claims 36, 37, and 40-50 are directed to the recombinant vector. Claims 51-56 are directed to a cell comprising the recombinant vector, claims 57-66 are directed to the method of producing the recombinant vector. Claims 67-70 are directed to a method of mutagenizing an infectious viral genomic sequence in the aforementioned recombinant vector, and claims 71 and 72 are directed to a vector obtained in accordance with such a method.

The Amendments to the Specification

The specification has been amended to correct grammar and to include reference to SEQ ID NO: 1 and SEQ ID NO: 2, which are set forth in Fig. 23b and are included on the sequence listing submitted herewith. Accordingly, no new matter has been added by way of these amendments.

The Amendments to the Claims

The claims have been amended to point out more particularly and claim more distinctly the present invention. In particular, claim 36 has been amended to incorporate the subject matter of claim 39. As such, claims 38 and 39 have been cancelled, and claim 40 has been amended to change its dependency. Claims 45, 46, 63, and 64 have been amended to contain proper antecedent basis by replacing the term "cloning vehicle sequence" with the term "BAC." Claim 68 has been amended to contain proper antecedent basis by replacing the term "DNA molecules" with the term "mutagenizing DNA molecules," and to delete the phrase "contained in the bacterial host cell." Claim 71 has been amended to replace the

phrase "obtained in accordance with" with the phrase "obtained by," and to recite that the recombinant vector contains a mutagenized viral genomic sequence larger than 100 kb. This amendment is supported by the specification at, for example, page 7, second paragraph. Accordingly, no new matter has been added by way of these amendments.

The Amendments to the Drawings

The Examiner is requested to approve the accompanying replacement drawings. Specifically, Fig. 23b has been amended to include reference to SEQ ID NO: 1 and SEQ ID NO: 2, which are included in the sequence listing submitted herewith.

The Office Action

The Office Action raises the following concerns:

(a) an English translation of the German priority application must be provided in order to obtain the benefit of foreign priority under 35 U.S.C. §§ 119(a)-(d),

(b) claims 38-44, 63-64, and 71-72 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite,

(c) claims 36-43, 46-48, 50-51, 53-54, 56-64, and 67-72 are rejected under 35 U.S.C. § 102(a) as allegedly anticipated by Messerle et al., *Proc. Natl. Acad. Sci. USA*, *9*: 14759-14763 (1997) ("the Messerle 1997 reference"),

(d) claims 36, 38-39, 43, 48, 51, 54, 57-60, and 63 are rejected under 35 U.S.C. § 102(a) as allegedly anticipated by Delecluse et al., *Proc. Natl. Acad. Sci. USA*, *95*: 8245-8250 (1998) ("the Delecluse reference"),

(e) claims 71-72 are rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Messerle et al., *J. Mol. Med.*, *74*(4): B8 (1996) ("the Messerle 1996 reference"),

(f) claims 36, 38, 48, 51, 54, 57-59, 63, 67, 70, and 71 are rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Luckow et al., *J. Virol.*, *67*: 4566-4579 (1993) ("the Luckow reference"),

(g) claims 36, 38-39, 48, 51, 54, 57-60, 63-64, 67-69, and 71 are rejected under 35 U.S.C. § 102(e) as allegedly anticipated by U.S. Patent 6,277,621 ("the '621 patent")

(h) claims 37, 40-43, and 72 are rejected under 35 U.S.C. § 103(a) as allegedly obvious over the '621 patent in view of the Messerle 1996 reference.

Reconsideration of these rejections is respectfully requested.

Discussion of Foreign Priority

The Office Action indicates that an English translation of the German priority application must be provided in order to obtain the benefit of foreign priority under 35 U.S.C. §§ 119(a)-(d). Applicants submit herewith such a translation. The priority date of the subject application is August 1, 1997 (i.e., the filing date of the German priority application).

Discussion of Sequence Listing

The sequence listing filed on July 25, 2001 allegedly does not comply with the requirements of 37 C.F.R. 1.821-1.825. Submitted herewith is a substitute sequence listing containing SEQ ID NO: 1 and SEQ ID NO: 2. SEQ ID NO: 1 corresponds to the nucleic acid sequence denoted "Kn5/rev." in Figure 23b, while SEQ ID NO: 2 corresponds to the nucleic acid sequence denoted "MCMV" in Figure 23b. Accordingly, no new matter has been added by way of the substitute sequence listing.

Discussion of Rejections Under 35 U.S.C. 112, Second Paragraph

Claims 38-44, 63-64, and 71-72 have been rejected under Section 112, second paragraph, as allegedly indefinite. As suggested by the Office Action, (a) claim 38 has been amended to replace the phrase "derived from" with the phrase "obtained from," (b) claims 63-64 have been amended to replace the phrase "cloning vehicle sequence" with the term "BAC," (c) claim 68 has been amended to refer to "the mutagenizing DNA molecules," and (d) claim 71 has been amended to replace the phrase "obtained in accordance with" with the phrase "obtained by." Accordingly, the rejections under Section 112, second paragraph, are rendered moot by these amendments.

Discussion of Rejections Under 35 U.S.C. §§ 102(a) and (e)

Claims 36-43, 46-48, 50-51, 53-54, 56-64, and 67-72 have been rejected under Section 102(a) as allegedly anticipated by the Messerle 1997 reference. Claims 36, 38-39, 43, 48, 51, 54, 57-60, and 63 have been rejected under Section 102(a) as allegedly anticipated by the Delecluse reference. Claims 36, 38-39, 48, 51, 54, 57-60, 63-64, 67-69, and 71 have been rejected under Section 102(e) as allegedly anticipated by the '621 patent.

A publication qualifies as prior art under Section 102(a) if the publication was by another and occurred prior to the date of invention for the claims in issue. A patent qualifies as prior art under Section 102(e) if the patent has an effective filing date prior to the date of invention for the claims in issue. Here, the Messerle 1997 reference was published in December 1997, and the Delecluse reference was published in July 1998. The '621 patent allegedly has an effective filing date of February 26, 1998. However, the date of invention for the claims in issue is at least as early as August 1, 1997, i.e., before the publication dates of the Messerle 1997 reference and the Delecluse reference, and before the alleged effective filing date of the '621 patent, as demonstrated by the text of the German patent application to which the present application claims priority under 35 U.S.C. § 119. An English translation of the German patent application to which the present application claims priority is concurrently filed herewith. As is apparent from the English translation, the German patent application fully supports the pending claims, and it is clear that Applicants invented the subject matter of the pending claims prior to the publication of the Messerle 1997 reference and the Delecluse reference, and prior to the alleged effective filing date of the '621 patent. As a result, the Messerle 1997 reference and the Delecluse reference are not prior art to the pending claims under 35 U.S.C. 102(a), and the '621 patent is not prior art to the pending claims under 35 U.S.C. § 102(e). See also M.P.E.P. § 2136.05.

Discussion of Rejections Under 35 U.S.C. § 102(b)

Claims 71-72 have been rejected under Section 102(b) as allegedly anticipated by the Messerle 1996 reference, and claims 36, 38, 48, 51, 54, 57-59, 63, 67, 70, and 71 have been rejected under Section 102(b) as allegedly anticipated by the Luckow reference. These rejections are traversed for the reasons set forth below.

The Messerle reference allegedly discloses the construction of BAC/MCMV hybrids that comprise an infectious viral genomic sequence greater than 200 kilobases in length. The hybrid vectors reportedly can be replicated in *E. coli* and used to produce MCMV virions in mammalian cells.

Claim 71, as amended, is directed to a recombinant vector obtained by the method of claim 67, wherein the recombinant vector contains a mutagenized viral genomic sequence larger than 100 kb. Claim 67 requires introducing a recombinant vector into a bacterial host cell, which contains mutagenizing DNA molecules, and mutagenizing the infectious viral

genomic sequence in the recombinant vector. The Messerle reference does not disclose using a bacterial host cell that contains mutagenizing DNA molecules to produce BAC/MCMV hybrid molecules. Accordingly, the Messerle reference cannot be said to anticipate the subject matter of claim 71, or claim 72 depending therefrom.

The Luckow reference allegedly discloses baculovirus shuttle vectors comprising an infectious baculovirus genome sequence fused to a mini-F replicon, a kanamycin resistance marker gene, and transposon recognition sites, which can autonomously replicate in *E. coli*. Claim 36, as amended, is directed to a recombinant vector containing an infectious herpes virus genomic sequence larger than 100 kb and all or a portion of a bacterial artificial chromosome (BAC). The Luckow reference does not disclose or suggest a recombinant vector containing herpes virus genomic sequences and a BAC. Accordingly, the Luckow reference does not anticipate the subject matter of claim 36, or claims 48, 51, 54, 57-59, 63, 67, 70, and 71.

In view of the foregoing, the Section 102(b) rejections should be withdrawn.

Discussion of Rejections Under 35 U.S.C. 103

Claims 37, 40-43, and 72 have been rejected under Section 103(a) as allegedly obvious over the '621 patent in view of the Messerle 1996 reference. This rejection is traversed for the reasons set forth below.

As discussed above, the '621 patent is not prior art to the pending claims. Moreover, as discussed above with respect to the Section 102(b) rejection, the Messerle reference does not disclose using a bacterial host cell that contains mutagenizing DNA molecules to produce BAC/MCMV hybrid molecules. Thus, the invention defined by claims 36, and claims 37, 40-43, and 72, is not obvious in view of the cited references, whether considered alone or in combination. Applicants, therefore, respectfully request withdrawal of the Section 103 rejection of these claims.

Conclusion

If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned agent.

Respectfully submitted,

Melissa E. Kolom, Reg. No. 51,860
LEYDIG, VOIT & MAYER, LTD.
Two Prudential Plaza, Suite 4900
180 North Stetson Avenue
Chicago, Illinois 60601-6780
(312) 616-5600 (telephone)
(312) 616-5700 (facsimile)

Date: September 1, 2005

Amendment or ROA - Regular (Revised 2005 08 01)

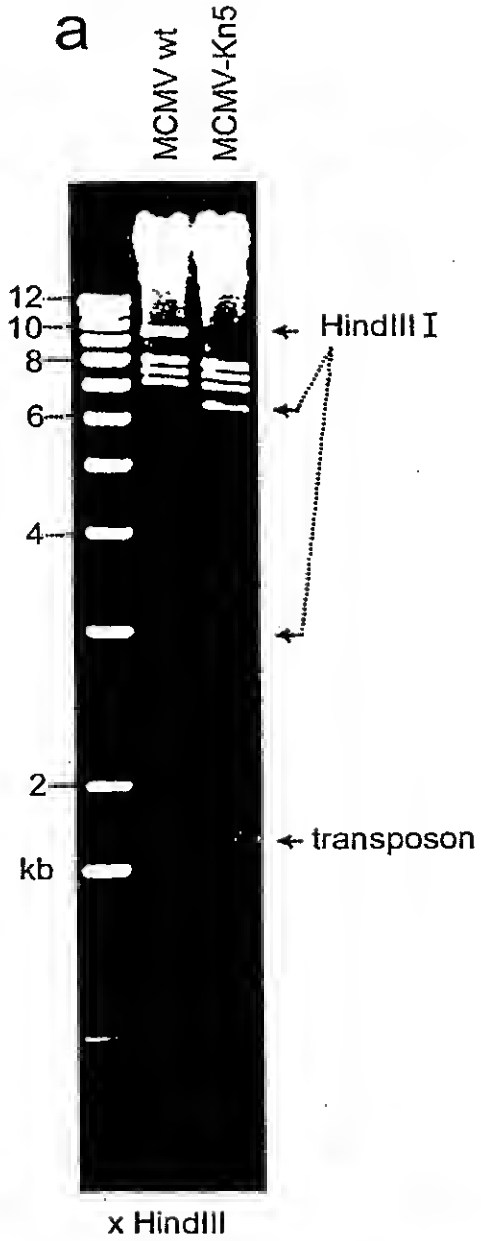
AMENDMENTS TO THE DRAWINGS

The attached sheets includes changes to Fig. 23b. The Replacement Sheet, which includes Fig. 23a and Fig. 23b, replaces the original sheet including Fig. 23a and Fig. 23b. Fig. 23b has been amended to include reference to SEQ ID NO: 1 and SEQ ID NO: 2, which are included in the sequence listing submitted herewith.

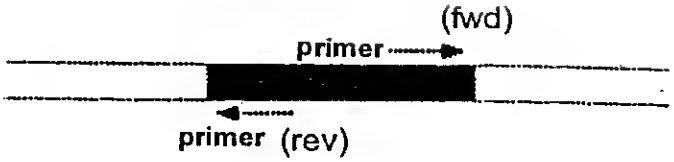
Attachment: Replacement Sheet
Annotated Sheet

Fig. 23

a



b

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            89          79          69
Kn5/rev     GGAGATCCCGAAACGGCCGAGCTCNTNCAG
            |||||||||||||||||||||||||:|:|||
MCMV        GGAGATCCCGAAACGGCCGAGCTCCTCCAG
       198810      198820      198830

            59          49          39
Kn5/rev     GTTGCGNGCCACCAGGTGCAGNGTGTCGTC (SEQ ID NO: 1)
            ||||||:|||||||||||||||:||||||||
MCMV        GTTGCGCGCCACCAGGTGCAGCGTGTCGTC (SEQ ID NO: 2)
       198840      198850      198860
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